WHAT IS CLAIMED IS

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1. An information providing device comprising:

a provider association unit making a plurality of information providers, including first and second information providers, be associated with each other, the plurality of information

10 providers providing respective user information items, the provider association unit comprising:

a first unit causing the first information provider to receive a first user information item, stored in a first information management unit, in response to a user information receiving

15 request;

a second unit causing the second information provider to receive a second user information item, correlated with the first user information item and stored in a second information management unit, in response to a predetermined identification data; and

20 a third unit outputting a unified information item which is created by combining the first user information item and the second user information item based on the predetermined identification data.

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2. The information providing device according to claim 1 wherein the user information receiving request contains retrieval conditions specified therein, and the provider association unit causes the first and second information providers to respectively receive the

5   first and second user information items that satisfy the retrieval conditions.

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3. The information providing device according to claim 1 wherein the provider association unit is provided to unify the information items received by the first and second information providers for every user.

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4. The information providing device according to claim

20   1 wherein the information providing device further comprises the first information provider and the second information provider.

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5. The information providing device according to claim 1 wherein the information providing device further comprises:

a first-information-provider information management unit managing a first-information-provider identification data which identifies the first information provider from among the plurality of information providers; and

a second-information-provider information management unit managing a second-information-provider identification data which identifies the secong information provider from among the plurality of information providers.

6. The information providing device according to claim 1 wherein the information providing device further comprises a call information management unit in which a plurality of call information items used to call the plurality of information providers respectively are recorded, and the provider association unit causes the first and second information providers to respectively receive the first and second information items by calling the first and second information providers based on the call information management unit.

7. An information providing method for use in an information providing device which makes a plurality of information providers, including first and second information providers, be associated with each other, the information providing method

5   comprising:

causing the first information provider to receive a first user information item, stored in a first information management unit, in response to a user information receiving request;

causing the second information provider to receive a

10   second user information item, correlated with the first user information item and stored in a second information management unit, in response to a predetermined identification data; and

outputting a unified information item which is created by combining the first user information item and the second user

15   information item based on the predetermined identification data.

20   8. The information providing method according to claim 7 wherein the user information receiving request contains retrieval conditions specified therein, and the first and second information providers are caused to respectively receive the first and second user information items that satisfy the retrieval conditions.

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9. The information providing method according to claim 7 wherein the information items received by the first and second information providers are unified for every user.

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10. A computer program product for causing an information providing device which makes a plurality of information

10 providers, including first and second information providers, be associated with each other, to perform:

causing the first information provider to receive a first user information item, stored in a first information management unit, in response to a user information receiving request;

15 causing the second information provider to receive a second user information item, correlated with the first user information item and stored in a second information management unit, in response to a predetermined identification data; and

outputting a unified information item which is created

20 by combining the first user information item and the second user information item based on the predetermined identification data.

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11. The computer program product according to claim 10 wherein the user information receiving request contains retrieval conditions specified therein, and the first and second information providers are caused to respectively receive the first and second user

5   information items that satisfy the retrieval conditions.

10   12. A user authentication device comprising:

a provider association unit which makes a plurality of authentication providers, including first and second authentication providers, be associated with each other, the provider association unit comprising:

15   a first unit causing the first authentication provider to perform, in response to a first authentication request, a first user authentication based on a first user identification data that is specified in the first authentication request; and

a second unit causing the second authentication provider

20   to perform, in response to a second authentication request related to a user approved by the first user authentication, a second user authentication based on a second user identification data that is correlated with the first user identification data.

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13. The user authentication device according to claim 12 wherein the user authentication device further comprises the first authentication provider and the second authentication provider.

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14. The user authentication device according to claim 12 wherein the user authentication device further comprises a user-

10 identification management unit in which the first user identification data and the second user indentification data are correlated to each other and recorded, and the provider association unit is provided to search for the second user identification data in the user-identification management unit based on the first user identification

15 data.

20 15. The user authentication device according to claim 12 wherein the provider association unit further comprises a user-identification management unit in which the first user identification data and the second user indentification data are correlated to each other and recorded, and the provider association unit is provided to

25 search for the second user identification data in the user-

identification management unit based on the first user identification data.

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16. The user authentication device according to claim 12 wherein the user authentication device further comprises:

a first-authentication-provider information management

10 unit managing a first-authentication-provider identification data which identifies the first authentication provider from among the plurality of authentication providers; and

a second-authentication-provider information management unit managing a second-authentication-provider

15 identification data which identifies the second authentication provider from among the plurality of authentication providers.

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17. The user authentication device according to claim 12 wherein the user authentication device further comprises a call information management unit in which a plurality of call information items used to call the plurality of authentication providers

25 respectively are recorded, and the provider association unit causes

the first and second authentication providers to perform the first and second user authentications respectively by calling the first and second authentication providers based on the call information management unit.

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18. The user authentication device according to claim 12

10   wherein the first authentication provider creates a first electronic ticket which certifies approval of the user by the first authentication provider, the second authentication provider creates a second electronic ticket which certifies approval of the user by the second authentication provider, and the user authentication device provides

15   information containing the first electronic ticket, in response to the first authentication request and provides information containing the second electronic ticket, in response to the second authentication request.

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19. The user authentication device according to claim 18 wherein the provider association unit creates a merge ticket in which

25   the first electronic ticket and the second electronic ticket are unified,

and the user authentication device provides a first merge ticket in
which the first electronic ticket is unified, in response to the first
authentication request, and provides a second merge ticket in which
the second electronic ticket is unified further, in response to the

5   second authentication request.

10   20. The user authentication device according to claim 19
wherein the user authentication device provides the merge ticket
which is encoded.

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          21. The user authentication device according to claim 19
wherein at least one of the merge ticket, the first electronic ticket,
and the second electronic ticket contains a term of validity.

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          22. The user authentication device according to claim 19

25   wherein at least one of the merge ticket, the first electronic ticket,

and the second electronic ticket contains a code for ticket
falsification check.

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23. The user authentication device according to claim 19
wherein at least one of the merge ticket, the first electronic ticket,
and the second electronic ticket contains a range of validity.

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24. The user authentication device according to claim 12
15 wherein the first authentication provider is a password
authentication provider which performs a password authentication
based on a password of the user, and the second authentication
provider is a fingerprint authentication provider which performs a
fingerprint authentication based on a fingerprint of the user.

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25. The user authentication device according to claim 19
25 wherein the provider association unit causes the first authentication ·

provider to decode the first electronic ticket of the first merge ticket in response to a decode request of the first merge ticket, and causes the second authentication provider to decode the second electronic ticket of the second merge ticket in response to a decode request of

5   the second merge ticket.

10   26. The user authentication device according to claim 12 wherein the provider association unit is provided with a call function using a remote procedure call of SOAP.

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27. A user authentication method for use in a user authentication device which makes a plurality of authentication providers, including first and second authentication providers, be

20   associated with each other, the user authentication method comprising:

causing the first authentication provider to perform, in response to a first authentication request, a first user authentication based on a first user identification data that is specified in the first

25   authentication request; and

causing the second authentication provider to perform,
in response to a second authentication request related to a user
approved by the first user authentication, a second user
authentication based on a second user identification data that is

5   correlated with the first user identification data.

10   28. The user authentication method according to claim
27 wherein the second user identification data is searched for in a
user-identification management unit, based on the first user
identification data, and, in the user-identification management unit,
the first user identification data and the second user indentification

15   data are correlated to each other and recorded.

20   29. The user authentication method according to claim
27 wherein the first authentication provider is identified from among
the plurality of authentication providers based on a first-
authentication-provider identification data managed by a first-
authentication-provider information management unit, and the

25   second authentication provider is identified from among the plurality

of authentication providers based on a second-authentication-
provider identification data managed by a second-authentication-
provider information management unit.

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30. The user authentication method according to claim
27 wherein the first and second authentication providers are caused

10 to perform the first and second user authentications respectively by
calling the first and second authentication providers based on a call
information management unit in which a plurality of call information
items used to call the plurality of authentication providers
respectively are recorded.

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31. A computer program product for causing a user

20 authentication device which makes a plurality of authentication
providers, including first and second authentication providers, be
associated with each other, to perform:
causing the first authentication provider to perform, in
response to a first authentication request, a first user authentication

25 based on a first user identification data that is specified in the first

authentication request; and

causing the second authentication provider to perform, in response to a second authentication request related to a user approved by the first user authentication, a second user

5   authentication based on a second user identification data that is correlated with the first user identification data.

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32. The computer program product according to claim 31 wherein the second user identification data is searched for in a user-identification management unit, based on the first user identification data, and, in the user-identification management unit,

15   the first user identification data and the second user indentification data are correlated to each other and recorded.

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